

Advancing construction industry development, innovative research and new thinking

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ADVANCING CONSTRUCTION INDUSTRY DEVELOPMENT, INNOVATIVE RESEARCH AND NEW THINKING

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Academic writing has a tendency to be turgid and impenetrable. This is not only anathema to communication between academics, but also a major barrier to advancing construction industry development. Clarity in our communication is a prerequisite to effective collaboration with industry. An exploration of what it means to be an academic in a University is presented in order to provide a context for a discussion on how academics might collaborate with industry to advance development. There are conflicting agendas that pull the academic in different directions: peer group recognition, institutional success and industry development. None can be achieved without the other, which results in the need for a careful balancing act. While academics search for better understandings and provisional explanations within the context of conceptual models, industry seeks the practical application of new ideas, whether the ideas come from research or experience. Universities have a key role to play in industry development and in economic development.

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INTRODUCTION

The idea of helping to develop the construction industry through innovative research and new thinking is an interesting one. On the one hand, it seems self-evident that innovative research and creative thinking will be beneficial to any industry. On the other hand, working in such an applied field as construction management, at the interface between industry and academia, reveals two worrying phenomena. First, a lot of the research papers in our field are badly written. The style can be turgid and uninteresting. They often lack a clear research methodology. Sometimes, they fail to explain a clear method of analysis. Some lack a critical appraisal of results in which alternative explanations for observations are explored. Clearly, academic writing is not easy for most of us (we could all heed the advice given by Sword 2012, in her guidance on academic writing, in which she states “there is a massive gap between what most readers consider being good writing and what academics typically produce and publish”). Worryingly, the problem is as likely to occur with seasoned academics as with research students; Sword (2012) found from a survey of academics that they rarely read books about how to improve their writing style. There is a message here for all of us! The second worrying phenomenon, partly a result of the first, is that

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practitioners of construction management rarely pay attention to the research that is meant to improve the industry. While this may be a result of impenetrable papers, there is also the risk that academics concern themselves with issues that are not of interest to the practitioner community. The alienation of practitioners from academic research is, perhaps, inevitable with this combination of factors.

There are many routes to influencing construction industry development: teaching, professional training, involvement in policy setting, research and publication. The focus of this keynote paper is on the last two, but it must always be remembered that carrying out original research and publishing our results in journals and academic conferences are not the only ways to achieve the aims of industry development. They are also not the easiest.

A good paper should be a pleasure to read, but too many of them report research that fails to advance construction industry development. Together, we need to figure out how to produce research that is innovative and relevant to the construction sector. Perhaps part of the problem lies in ill-conceived notions of what an academic CV should look like. I often come across academics who believe that an individual's list of publications must be long, regardless of whether anyone finds the work useful. As I have written before (Hughes 2005) it is not merely the quantity of publications that matters in evaluating the case for appointing or promoting an academic. Moreover, if we behave as if the purpose of publishing our research was to get ourselves promoted, then we should not wonder why practitioners seem disinterested in what we write. After all, most people get irritated when confronted with an endless stream of marketing and advertising material. If academic writing looks like nothing more than self-promotion, then there is no wonder that others are disinterested.

The reason that journal papers are often regarded as the most important type of publication is because of the vetting process through which papers are put. Generally, the more rigorous the vetting process, the higher it is rated by the academic community. The challenge, then, is to ensure that our papers will stand up to the kind of scrutiny to which they will be put by those who act as gatekeepers to publication. This means that papers have to be well-written, reporting well-designed and executed research, with a tangible connection to the practice we seek to influence and develop. But it must always be remembered that academic journal papers are not necessarily the route to influencing or developing the construction industry.

WHY ARE YOU DOING THIS?

One question that often runs through my mind at conferences is, “why are you doing this?” A presentation may consist of 10-15 minutes of witty erudition and entertainment with a snappy and thoughtful overview of some interesting and useful points that mean something to the audience. Such a speaker would make clear at the outset why this was important and how the work was carried out. On the other hand, someone else might drone on long past their allotted time about some dreary piece of work that has no connection to advancing practice, understanding or research. That is when I start to wonder “why are they doing this to us?” Of course, good presenters are not necessarily good researchers, and vice versa. At a conference, it is nice if speakers are entertaining, but being entertaining *per se* is not the point. Anyone who specializes in the topic of the conference will be delighted to listen to a paper on a topic close to their heart, and will be fascinated with it, and involved in the dialogue, as long as they

can follow it. So, the key thing about presenting research is not simply to be entertaining, but to be clear about what, in fact, the topic of your researching actually is. This leads to the first question that needs to be answered in any piece of communication about research: What is it about? I have lost count of the number of presentations and papers where it has been impossible to discern even this much from the communication. Is it because of difficult science or is it because of poor communication skills? Some of the most complex and difficult science I have come across has been explained very clearly by experts, so I presume that the problem is in communication skills, coupled with relevance.

I want to hear explicit answers to three questions early in any report of research, whether spoken or written:

- Why is it important? What is of value here, and to whom is it of value?
- How was the research carried out? Not just what was done in terms of methods and techniques, but also some discussion of methodology (which is not just fancy word for method!) Why were these techniques used and how to they relate to the kind of question that has been researched?
- What was discovered and how does that help anyone? Who does it help?

If we all started with these points, then every conference would be a more enjoyable exchange of ideas and learning. Of course, listening to presentations and Q and A sessions is not the sole purpose of a conference, which is just as much about networking as anything else (for more thoughts on academic networking, see Agre 2005).

ACADEMIC RESEARCH IN AN APPLIED FIELD

In considering the purposes of this conference, it is clear that when we talk of research and publication in the construction management arena, we have an obligation to focus on the relevance of our research to practitioners. Are the academic and industry agendas complementary or in conflict? In a previous paper (Hughes 1999) I considered what it meant to carry out academic research in an applied field. Of course, even within a University, the agendas of the individual academic are not necessarily the same as those of the department or the University. Dealing with conflicting agendas within the University is hard enough. The conflict between these agendas may distract us from thinking further about how to relate our work to the industry and, perhaps to wider society.

Clearly, when dealing with academic work, we are members of multiple academic constituencies. At the individual level, we develop an expertise; an interest in an area or topic that we have studied and research extensively over many years. In order to develop as an academic, research is undertaken, papers published, students taught, and ultimately invitations arrive from companies or governments for advice. One hopes for a consistent thread that links these activities so that each enriches the other during the development of one's career. Each individual academic will find career progression facilitated by being known for a specific topic. But we work not only as individuals.

Many of the activities we engage in can only be done when we are members of departments or faculties in universities. There may be conflict between the need of a department and the need of an individual academic. For example, the teaching of specific modules has to be done, but there may be no-one with the specific research background to teach it. What may happen in this situation is that the teaching is not based on research, but on existing knowledge and text books. In this way, departmental pressures may cause us to become teachers, rather than researchers.

Departments and faculties are organizational units of a larger organization; the university. To what extent is there conflict between the levels of activity as individual academics, departments and the University? An example of the conflicting agendas between the individual academic and the University is the choice of where to publish papers. While the individual may wish to place a paper in a journal that is most appropriate in terms of peer group, the University may insist that only journals in certain lists, or of a certain rank, may be used as an outlet for publications. The lunacy of such a policy has been articulated elsewhere (e.g. Editage, 2013; Yandell 2013) and the idea that a high-impact journal publishes only high-impact papers is clearly ludicrous.

In terms of thinking about journals, each has a specific community of editors, authors and referees. What they see as significant and useful will, perhaps, be part of what makes them distinctive. Moreover, whether commercial publishers are involved or not, the individual might find that his or her framing of a research topic, or style of presentation, might not match the expectations of a journal. Each journal may have its own view of what is acceptable and this may be in conflict with the individual academic's approach.

As noted above, the CM research community is inextricably bound to practitioners in the construction sector. How do the requirements for practical problem-solving, or the requirements for the teaching of students, square with the notion of what the individual academic, the department and/or the University feel that they need to do? Clearly, the University and its staff are not merely a service sector providing the industry with what it requests. There is more to a University than that!

The diversity of objectives we seek to fulfil as academics, then, arise from our individual agendas clashing with those arising from departments, faculties, universities, journals and research funders, as well as industry and broader society. A regular feature of organizational life is that personal involvement in an organizational is partial and temporary (Scott 1981); the people who take part in any organization do not take part to the exclusion of everything else. So the task of dealing with a complex array of clashing objectives should be a normal part of working life for all of us. And this raises a serious question for each of us: What does it mean to be an "academic"? Some of the key elements of academic life in relation to this issue are articulated below, before returning to the issue of how all of this relates to the practitioner community.

ACADEMIC PREOCCUPATIONS

The purpose of a university may be seen as its distinctive task, which has been said to be "the methodical discovery and teaching of truths about serious and important things" (Shils 1997). Of course, the idea that the "truth" is out there waiting to be discovered is, in itself, a contentious issue. This carries an implication about the nature of reality, the role of the researcher and the very definition of what it means to

do research. This is not the place to begin an argument about the different traditions of research in comparing, say, the social sciences with the natural sciences, save to point out that Shils was using the language of a natural scientist. In the CM community, we are typically dealing with social sciences such as behavioural studies, economics, management, law and so on. Thus, we are not seeking universal truths, but better understanding. And there is a seductive attraction to the fundamental idea that science proceeds by developing provisional truths by consensus that will suffice until better explanations are developed.

No matter what our focus is, or what kind of science we do, the focus on research is the source of our legitimacy to teach. This why we may not compete in the same area as consultants or other practitioners, whose legitimacy arises from personal experience. The question that this reveals is in the area of training vs education; consultancy vs research. Education involves training, of course, but vocational training alone is not what Universities do. What I see in the relationship between Universities, industry and governments is an increasing pressure on Universities to focus less on what makes them distinctive. Many of us feel the push into consultancy and training, which is not what we signed up for.

While not wanting to privilege Shils' view of what constitutes research, the idea of a scientific truth may still be a useful touchstone for discussion. As mentioned above, scientific endeavours of all kinds tend to be oriented around the development of a provisional consensus. Unlike other kinds of truth, this means that everything we think we have discovered or understood is always open to question and re-visiting. Research may be seen as the observation of certain specific phenomena within a theoretical framework in order to develop better explanations that improve our collective understanding. This is what we have to offer the construction sector. However, despite pressures to the contrary, we are not merely reporting phenomena - i.e. science is not journalism. This is what underpins my fundamental objection to endless questionnaire surveys that are carried out in our field, of the kind where the "researcher" lists some draft conclusions, than asks some practitioners to confirm them. Simply asking practitioners what they think will not develop or advance our understanding. It provides only a journalistic exercise that will inevitably preserve the status quo (Seymour and Rooke 1995). Sample surveys can be incredibly useful as fact-finding exercises, when they are well-designed and carefully executed. But in the CM literature, many of them are neither fact-finding nor useful. In thinking about how best to develop the construction sector, I have repeatedly come across the phenomenon that practitioners in the construction sector seem not to conceptualize what they do. Indeed, many of our academics seem to fail to conceptualize, too, which is a singular failure.

To repeat the basis of my stance: research may be seen as the observation of certain specific phenomena within a theoretical framework in order to develop better explanations that improve our collective understanding. My feeling about failures in research and publications is driven by the preponderance of papers that have no explicit theoretical positioning and no conceptual models. The best papers connect a question to a particular theory, develop or articulate a conceptual model, then use that model as basis for making observations and analysing them in order to say something useful about something specific. We have a duty to conceptualize, rather than merely report, otherwise we do not deserve the appellation of "academic" and we would not earn the right to teach students at this level.

Why the focus on academic outputs?

Academic outputs are not the only kinds of output that we can produce. While not wishing to sound patronizing, industry tends to need more prosaic forms of communication. The so-called “busy practitioner” is, I am told, not going to read scientific papers or try to disentangle different conceptualizations of the kind of things that influence and shape practice. Rather, we are asked for the “elevator-pitch” or a précis of no more than one piece of paper, as if we were a salesforce trying to peddle the latest solution to the ills of the industry. But this should not blind us to the need for recognition beyond our immediate peer group. Instead, we need to embrace the need for different kinds of output. What is reported in an academic journal paper, if it has relevance for more than our peer group, should be also reported in entirely different media as magazine articles, blogs, tweets, radio interviews and so on. There are many avenues available to us for reporting the results of our research in our quest to respond to “the intensifying search for recognition in the wider disciplinary community” (Silver 2003: 164).

While recognition from industry/practice and wider society is vital, it is often not the kind of recognition that is rewarded by funding agencies, promotion and appointment committees. The competition for promotion tends to reduce the evaluation of the quality of academic work to a very low common denominator. One of the interesting ideas put forward by Silver (2003) in his discussion of the culture of academic life is that the community of scholars does not exclusively possess the University and does not necessarily reside within it. The boundaries around the University are blurred and porous.

In this kind of world, our publications must serve many purposes and interests. Of course, we seek to record scientific progress in the field. This is what archival research journals are for. As Silver points out, we also seek to create the sense of a “bundle of knowledge” or community of specialist scholars. Through such activities we may be able to develop recognition in academic community and provide evidence for promotion cases. But these aims are not served by writing like journalists and are not typically seen as techniques for wide dissemination, which is why I think that they are not necessarily useful for industry. It is better that we do not try to use our archival journal papers as vehicles for dissemination; therefore, such papers are not the only fruit of academic effort. If we want to advance the construction industry, in other words, we need first to understand the issues that confront the construction sector and then develop new insights that make conceptual sense within a community of specialist scholars, tested through the vetting process of refereeing. Subsequently, the work should be disseminated through other channels in different formats. This follow-through is essential, to provide feedback to industry and seek to address

INDUSTRY/UNIVERSITY COLLABORATION IN BUILT ENVIRONMENT RESEARCH

The models of academic research and publication that have emerged in traditional academic disciplines are an important part of what academics are expected to do. But such activities form only a part of the overall picture. Built environment research involves close collaboration between industry and Universities. Therein lies danger! If practitioner-academic collaboration is too close, there may be a perception (even a mistaken perception) that it could be difficult for academics to earn the peer group recognition that is needed for career progression and University rankings. Practical application of new ideas is not always sufficient for the academic agenda. If

practitioner-academic collaboration is too distant, then the research and publications of academics quickly become obscure and irrelevant to industry; even to students. This means that there is a delicate balancing act for academics to manage when designing and carrying out their research. This was discussed by Seymour and Rooke (1995) who carried out a very interesting enquiry into how CM research was oriented around a rationalist view of research to the detriment of progress in understanding. They argued that the kind of rational, quantitative studies that dominated CM research in the latter part of the 20th century served to do nothing more than endorsing and preserving the very attitudes and industry practices that ultimately had to change.

Much of the activities in which academics are engaged is fuelled by business cases of one kind or another. There is a business case for funding research, avidly pursued by research councils who can only respond to political pressures to fulfil electoral promises. The democratic processes result in a growing need for politicians to be able to point to the results from government-funded research, which means that practical outputs are sometimes the only game in town. There is a business case for funding journals; a successful side of publishing that sees the growth of highly successful multi-multinational publishing companies voraciously acquiring academic journals. These journals make good business, even when they are targeted at relatively small subsets of narrowly defined academic interest, because a well-founded library has to support the activities of academic departments. This is true whether the traditional subscription model applies (reader pays) or the newer open access model applies (author pays). Either way, someone pays; publishers are interested in that revenue stream. Such business exigencies may have the unintended consequence of re-writing the academic agenda. In the past, the gatekeeping process of editing and refereeing were designed to filter out badly executed and/or badly written research. In the future, especially if authors are paying for publication, will the new customers demand something else from journals? The jury is still out on that issue.

Another question which remains unresolved is how academics might respond to these pressures. Sometimes, it boils down to a choice between institutional and ethical responses. As an individual academic, my needs to develop peer-group recognition (long-term career-building) may conflict with the University's short-term institution-building agenda. Both deserve a response, and neither should be disregarded. For the reasons given earlier in this paper, the consequences for career development depend on the mode of research-output measurement, which differs between disciplines, institutions and between countries. This is why we cannot simply transplant academic practice and academic ethics from one place to another. Indeed, there is a common misconception of the relationship between quality and quantity. When quantity is seen as the important measure, what chance is there of developing high-quality research outputs? Is the academic ethic based around developing new insights or is it about making money through teaching and consultancy? This underpins the essential question of what universities seek from industry. However, none of it seems to help us focus on what industry seeks from universities.

We are often asked to think about what industry and universities can do together. We would do well to provide a list of potential engagements, in order that we can respond quickly and intelligently to interest from industry. Such a list could include:

- Co-funded research projects such as the UK's Knowledge Transfer Partnerships and Engineering Doctorates.
- Collaborative proposals to research councils.

- Student placements and guest lectures.
- Access to case study material for academic staff and students.
- Involvement in seminars/workshops
- Sponsored lectureships/professorships
- Membership of advisory boards – informing syllabus development
- Careers fairs and graduate recruitment
- Endowed scholarships/bursaries

Industry offers the potential for the practical application of ideas. Indeed, Universities are not the sole source of innovation; collaboration requires understanding from both sides. Universities can offer industry a number of benefits; indeed they have a role to play in regional economic development (Goldstein and Drucker 2005):

- Sharing risks and costs of innovation
- Links from discovery (exploration) to entrepreneurship (exploitation)
- Access to specialist know-how
- Screening of publications relating to new developments
- Knowledge of the archival research in the topic
- Learning from case studies
- Networks of potential collaborators (brokerage)
- Challenges to conventional wisdom
- Access to graduates and students for placements

These lists of potential interactions reveal plenty of scope for collaboration. The question of how to make it happen is not a question of technique. In other industry sectors, there is more movement of ideas and people between academia and industry. Why should there be a barrier between academia and industry in the construction sector? In dwelling upon this, it is clearly not through lack of opportunity to engage. The bullet-point lists above illustrate that there are extensive opportunities for mutual engagement and collaboration. Where there are serious barriers, it may be because the issues that seem to be of interest to academics are not seen as relevant by industry. And the perceptions of many academics about the boxes they need to tick for academic progress will not be ticked merely by responding to simple requests for problem-solving.

I return to the comments on Shils' characterization of the distinctive task of the University. It is probably not an over-simplification to say that his idea of "discovering truths" represents a popular view of science. This dominant view has been successfully challenged by the many in the built environment research community over the last 20 years. The difficulty of working in a multi-disciplinary area like CM is that if we are not careful, we become non-disciplinary. If we are asking economics-type questions, we need the discipline of economics. If we are asking legal questions, we need the discipline of law. Similarly for psychology, statistics, engineering and other myriad disciplines that might be brought to bear on questions in the construction sector. Many academics have realized the usefulness of social sciences in dealing with issues in the construction sector. But a lot of what passes for the application of social science in CM is obscure and, apparently, of little relevance outside of the highly specialized people who can deal with that kind of thing. It is not obvious that there is the same kind of disconnection in other industry

sectors and academic work on management, organization, economics and law. So perhaps the issue, after all, is not a failure on the part of the construction industry but failure on the part of the built environment research community to engage with major, practical issues in the industry. A recent special issue of *Building Research and Information* (Bordass and Leaman 2013) was an interesting exception to the trend, demonstrating that academic journals can produce papers that deal with the issues confronting practitioners. There are other exceptions, of course. But the key thing in all of our research is to remember why we are doing this.

There are many ways in which the built environment research community may contribute to the construction sector and to the wider academic community. Both agendas need careful attention or neither will achieve its full potential. But the barriers to the effective exchange of ideas could be reduced if we focused more seriously on them.

CONCLUSIONS

What helps academics to progress is peer recognition, rather than simply the impact factors sought by administrators. However, success in bureaucratic measures is what makes academics useful to departments and universities. The agenda for success, then, is a combination of recognition and impact. What makes a scientific paper useful is conformance with the customs and practice of the particular academic field. What makes academics useful to industry is being able to provide practical and positive advice through less academic channels. What makes industry useful to academics is regular and reliable interactions in all aspects of scholarship and application.

We are involved in a collaborative effort. None of us can survive without a fully-developed network of influence. Not every individual can simply bring such a network of influence into existence. It takes time, care and effort. But a successful University department will be fully-engaged with industry and will seek to create the kind of opportunities and forums whereby academics and practitioners can successfully and profitably share ideas and insights.

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